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## CHAPTER II. RATIONALE FOR THE 600-SHIP NAVY

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Once the unequivocally dominant power at sea, the U.S. Navy has seen this dominance erode over the past two decades as the result of a vigorous expansion by the Soviet navy in both the numbers and sophistication of its forces. During the past decade, Navy witnesses before the Congress have delivered increasingly hedged assessments about the degree of naval superiority enjoyed by the United States. Finally, in his testimony last year, the Chief of Naval Operations refused to claim any margin of superiority for U.S. naval forces. In his testimony, he stated:

. . . it would be misleading to continue speaking of a 'narrow margin' when, in fact, we have entered a period in which any reasonable estimate of the balance falls within the range of uncertainty. In other words, the situation today is so murky one cannot, with confidence, state that the U.S. possesses a margin of superiority. 1/

### U.S. VERSUS SOVIET NAVAL FORCES

The Soviet navy has improved substantially in the past 25 years. In the categories of major surface warships and amphibious ships alone, Soviet force levels grew from about 260 in the mid-1960s to 362 in 1980. Concern about the relative naval balance, however, is not so much the result of simple numerical comparisons. It is, rather, the result of qualitative trends and of the rapid evolution of the Soviet navy from a force of modest capabilities oriented toward coastal defense to a modern, blue-water force capable of posing a serious threat to the U.S. Navy anywhere in the world.

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1/ Testimony of Admiral Thomas B. Hayward, USN, Chief of Naval Operations, in Department of Defense Appropriations for 1982, Hearings before the Subcommittee on Defense, House Committee on Appropriations, 97:1 (March 1981), Part 1, p. 540.

A recent publication of the Department of Defense (DoD) estimated the size of the Soviet fleet at over 2,400 ships. 2/ A cursory examination of such fleet comparisons could lead to unwarranted alarm if the numbers were not put in the proper context. The large number of ships in the Soviet fleet is mostly accounted for by relatively small ships of modest capability. This impressive Soviet ship total does show, however, that, despite its recent emphasis on capable and expensive warships, the Soviet Union has also retained the large number of "low-mix" ships built to defend its extensive coastal areas and to support the four-fleet posture that geography imposes upon it. 3/

During the decade of the 1970s, the Soviet navy introduced 12 new classes of ocean-going warships, all equipped with modern, sophisticated weapons and electronics systems. At the same time, the Soviet Union adopted a distinctly more assertive stance in deploying its naval forces at sea, with Soviet naval groups appearing on a regular basis in areas such as the Mediterranean Sea where the U.S. had long been accustomed to unchallenged naval domination. The U.S.S.R. also demonstrated its new naval capabilities and tactics in large-scale exercises called "Okean," in which Soviet forces launched closely coordinated attacks against "enemy" forces clearly intended to represent U.S. carrier battle groups. A key element of the Soviet tactical approach was use of cruise missiles, launched by airplanes, submarines, and surface ships, for long-range attack. This aggressive new Soviet posture and the steady growth in the numbers of modern ships and weapons has created a challenge that is troubling to U.S. naval planners.

#### THE U.S. NAVY TODAY: LARGER COMMITMENTS--SMALLER FLEET

While the Soviet Union was expanding its naval capabilities, the U.S. Navy suffered substantial declines in some widely watched indicators of naval strength. Between 1970 and 1980, the number of ships operated by the U.S. Navy fell from 847 to 538 and uniformed personnel strength declined from 675,000 to about 525,000.

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2/ Department of Defense, Soviet Military Power (U.S. Government Printing Office, 1981), p. 40.

3/ The Soviet Union maintains fleets in the North Atlantic, North Pacific, Black Sea, and Baltic Sea.

The ships remaining in the fleet are newer and more capable than those that have been retired but, nevertheless, the Navy has substantially fewer ships with which to sustain its peacetime commitments or to undertake wartime operations than in the past. 4/

In the meantime, demand for naval patrol and presence operations in response to world tensions has increased. This has been true most notably in the Middle East where the United States now maintains a substantial naval force in waters on the other side of the world from the continental United States. The strains created in responding to these demands were recently described by the Chief of Naval Operations in these terms:

The records for continuous underway time established by our recent Indian Ocean deployers have exceeded those experienced during any conflict involving U.S. naval forces in this century. The fact is that the Navy has been at virtually a wartime operating tempo since the beginning of the Vietnam conflict, and has never stood down. Today the average ship's operating tempo actually exceeds Vietnam levels by about fifteen percent. 5/

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4/ Not only are the ships remaining in the fleet generally more capable than those retired but the Navy has found other ways of accomplishing functions performed by some former ships. For example, the fleet of 1970 contained four anti-submarine warfare (ASW) carriers (CVS) and their associated escort and support forces. Today's ASW capability, using fixed surveillance systems, land-based patrol aircraft, and more advanced sea-based ASW aircraft on attack carriers is almost certainly superior to any capabilities possessed by the old CVSs. Similarly, the decline in mine warfare ships is at least partially offset by the development of minesweeping helicopters (although such helicopters have no minehunting capability), and a decline in the numbers of fleet tugs has been offset by increased use of civilian charters.

5/ Testimony of Admiral Thomas B. Hayward, USN, in Department of Defense Appropriations for 1982, Hearings, Part I, pp. 537-38.

## THE FUTURE NAVY--THE NAVY'S PLAN

The Administration has provided the Congress with specific recommendations for the number and kinds of ships required to perform the Navy's missions. These recommendations derive from the Navy's current strategy for naval warfare in the event of conflict with the Soviet Union. This section briefly describes the Administration's force recommendations and their underlying rationale. 6/

### The Navy's View: Carrier Battle Groups Are Key to Victory at Sea

The Navy believes that the most efficient way to gain and maintain control of the seas during wartime would be to destroy hostile forces capable of challenging that control. 7/ This would include frontal assaults against Soviet naval forces and their supporting bases in Soviet home waters. Aircraft carrier battle groups would be used as the instrument of such offensive action. The Navy believes that the very existence of such offensive forces would force the Soviet Union into a defensive, reactive mode, allowing the United States to capitalize on Soviet geographic disadvantages and compelling the Soviets to concentrate their naval forces in areas close to the Soviet Union where they would pose less of a threat to U.S. sea lines of communication. 8/

The usefulness of carrier battle groups would by no means be limited to direct confrontations with the Soviet Union. In the Korean War and again in Vietnam, aircraft carriers were

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6/ Navy force objectives (ship numbers and types) presented in this section are based on Hearings on Military Posture and H.R. 2970, Hearings before the Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, 97:1 (February, March, and April 1981), Part 3, pp. 441-75.

7/ Testimony of Admiral Thomas B. Hayward, USN, Chief of Naval Operations, in Military Posture and H.R. 6459, Hearings before the Subcommittee on Seapower and Strategic and Critical Materials, House Committee on Armed Services, 96:2 (February and March 1980), Part 3, p. 361.

8/ Ibid.

heavily involved in conducting tactical air strikes and providing air support for ground forces. A recent Brookings Institution study examined the actual use of military forces in promoting U.S. political objectives in the period 1946-1975 and found that naval forces were involved in 177 of the 215 incidents studied, more than half of which involved aircraft carriers. <sup>9/</sup> Carriers remain the only means of very quickly aggregating a substantial amount of tactical air power on short notice in most areas of the world. Carrier battle groups are, therefore, an important instrument of national power in a wide range of conflict scenarios, including Third World crises, and can be expected to remain so for the foreseeable future.

In addition to carrier battle groups, the Navy's offensive forces include surface action groups (SAGs), which are naval combat units that do not contain an aircraft carrier. They have been used in the Middle East and the Caribbean, and might be a form of response appropriate to other crises in the Third World. Their offensive capability will be considerably enhanced by the availability of cruise missiles and might be further improved in the future by deployment of vertical/short-takeoff and landing (V/STOL) aircraft aboard small carriers or "air-capable" ships. The concept of surface action groups gives surface combatants an independent offensive mission once again and provides the Navy with additional flexibility in the employment of its forces.

The Navy intends to maintain and, in fact, substantially improve its capabilities for supporting amphibious operations. Amphibious operations, that is the forcible landing of troops (Marines) from sea against enemy resistance, are complex and difficult. The U.S. Navy and Marine Corps developed this military art to a high degree during World War II and have attempted to continue improving their amphibious capabilities since that time. The Administration has proposed a 50 percent increase in the lift capacity (numbers of troops and amount of equipment that can be transported) of U.S. amphibious forces.

In addition to these offensive roles, the Navy would continue to shoulder important defensive responsibilities in the event of war. It would be vital to keep open the sea lines of

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<sup>9/</sup> Barry M. Blechman and Stephen S. Kaplan, Force Without War (Washington, D.C.: The Brookings Institution, 1978), pp. 38, 41.

communications (SLOCs) connecting the United States with its allies and its economic trading partners. The Navy would accomplish this with barriers (across geographic choke points used by the Soviet fleet), with maritime air patrols, and with convoy escorts. Similarly, the logistics chains supporting military and naval operations around the world would have to be protected and/or provided by the Navy. All of this would require a large and capable fleet of ships.

The rest of this chapter discusses more specifically and in more detail the types and numbers of ships the Navy believes are necessary for performing its missions.

### Ship Counting Methodology

When speaking of force levels, it is important to be clear as to which things are counted and which are not. DoD has recently adopted a specific policy in this regard for naval ships. In discussing the 600-ship Navy or other issues relating to fleet size, the ships counted are only those that contribute to the Navy's wartime missions through combat or direct support of combat operations. These kinds of ships are shown in Table 1.

TABLE 1. SHIPS INCLUDED IN NAVY FORCE LEVEL GOALS, BY TYPES

Strategic Forces	Support Forces
Ballistic Missile Submarines (SSBN)	Material Support Ships (AD/AS/AR)
Battle Forces	Fleet Support Ships (ATS/ATF/ASR/ARS/ AGOS/TAGOS/TATF)
Aircraft Carriers (CV/CVN)	Major Mobilization Forces
Battleships (BB)	Reserve ships that would participate in combat or direct combat support
Cruisers/Destroyers (CG/CGN/ DD/DDG)	
Frigates (FF/FFG)	
Attack Submarines (SS/SSN)	
Amphibious Ships (LHA/LHD/LPD/ LSD/LST)	
Replenishment Ships (AOE/AOR/AO/ AE/AFS)	
Small Combatants (PG/PHM)	
Mine Warfare Ships (MSO/MCM/MSH)	

Not included are indirect support auxiliaries, prepositioning and sealift ships, and mobilization forces not likely to engage in combat or direct combat support. About 36 ships now operated by the Navy fall into these excluded categories.

### Carrier Battle Groups

During the past 25 years, the Navy has traditionally deployed aircraft carriers, with their associated escorts and support ships, in the Mediterranean Sea and in the Western Pacific. Until recently these standing deployments consisted of two carrier groups in the Mediterranean and two in the Western Pacific. Deteriorating conditions in the Middle East have now given rise to a requirement for forces in the Indian Ocean as well. As a result, the Navy now maintains five deployed carriers --usually a task force containing a carrier in the Indian Ocean, plus two carriers each in the Mediterranean and the Western Pacific. These five deployments are currently sustained by a force of twelve deployable carriers. <sup>10/</sup> This situation is part of the strained operating tempo cited by the Chief of Naval Operations. A more comfortable and sustainable posture would be to have three carriers in the force for each one deployed. This would provide for a more orderly rotation of ships to deployment stations, provide time for periodic maintenance, time ashore for the crew, and more ships to respond to unforeseen contingencies. These considerations, as well as an underlying concern that twelve carriers might be inadequate in wartime, have motivated the Navy's request to expand its force from 12 to 15 deployable carriers.

Expansion to a force of 15 carriers would require growth in other forces as well. The Navy would need enough additional escort and logistics ships to support the three new carriers. This would generate a requirement for about 26 additional surface

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<sup>10/</sup> There are actually 13 carriers in commission but one is undergoing an extensive refit under the Service Life Extension Program (SLEP). The planned continuation of SLEP will have one carrier in a nondeployable status at all times until the end of the century. In addition, the Navy maintains one older carrier, Lexington, as an aviation training ship. Lexington currently has no air group or aircraft support capability and could not be deployed.

combatants and 8 underway replenishment ships. <sup>11/</sup> In the Navy's plan, these would include a large proportion of highly capable and very costly surface combatants, such as the CG-47-class cruiser and the planned DDG-51-class destroyer.

Clearly, additional air groups would also be required for the new carriers, necessitating procurement of additional aircraft and expansion of the naval aircraft support structure. This issue is addressed in a companion CBO study, The Budgetary Implications of Modernizing and Expanding Carrier-Based Air Forces (forthcoming).

#### Surface Action Groups

The Navy also proposes, in their future force planning, to form four surface action groups (SAGs), which are smaller battle groups not containing aircraft carriers. An obvious role for the four Iowa-class battleships that the Navy plans to reactivate would be to serve as the centerpiece of these surface action groups. The Navy envisions future SAGs as consisting of a battleship, a CG-47-class cruiser, and three DDG-51-class destroyers. Equipped with cruise missiles, SAGs would be essentially equivalent to current Soviet battle groups and could operate as offensive strike groups in areas of moderate enemy threat. Using their guns as well as cruise missiles, they could be particularly effective in operations against coastal target areas and in support of amphibious operations.

Modification plans for the late 1980s could include fitting the battleships with a flight deck and support facilities for a detachment of vertical/short-takeoff and landing (V/STOL) aircraft or helicopters to provide air cover and extended surveillance for the surface action groups. But even without such facilities, the

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<sup>11/</sup> The Navy, for planning purposes, assumes that the 15 carriers would be deployed in wartime in seven two-carrier battle groups, each containing 12 surface escorts plus one single-carrier battle group containing six surface escorts. Each battle group, either with one or two carriers, would be supported by an underway replenishment group. In addition, the logistics chain would require naval auxiliary or merchant ships to resupply the replenishment ships. It is assumed here that three additional carriers would be supported by two additional replenishment groups.



modified battleships could operate with the support of land-based aircraft, helicopters from accompanying destroyers and cruisers and, in the future, aircraft from large amphibious ships (LHA/LHD) that could support V/STOL or helicopter operations. The four proposed SAGs would require about 20 ships and, as in the case of carrier battle groups, their operations would require the support of underway replenishment ships.

Total surface combatant requirements, as seen by the Navy, are shown in Table 2. This represents the number of surface warships required to support 15 aircraft carriers, four surface action groups, the amphibious force, 10 underway replenishment groups, and seven convoys.

TABLE 2. NAVY OBJECTIVE FOR SURFACE COMBATANT FORCE LEVEL a/

Force Types	BB	CGN	CG-47	DDG-51	DD-993	DD-963	FF/ FFG
15 Carrier Battle Groups	--	6	23	31	--	30	--
4 Surface Action Groups	4	--	4	12	--	--	--
Amphibious Force (1.5 MAF) <u>b/</u>	--	--	--	10	4	--	8
10 Underway Replenishment Groups	--	--	--	10	--	--	30
7 Convoys	--	--	--	--	--	7	63
Total	<u>4</u>	<u>6</u>	<u>27</u>	<u>63</u>	<u>4</u>	<u>37</u>	<u>101</u>

a/ See glossary in Table 1 for identification of ship type for each designation; for example, CG is a cruiser.

b/ A MAF is a Marine Amphibious Force consisting of about 32,500 troops.

### Attack Submarines

Many observers believe that submarines would be the warships most likely to prove decisive in future naval combat. The Navy now has a force of 91 attack submarines of which all but five are nuclear powered. <sup>12/</sup> They would be used in wartime to conduct offensive operations against enemy submarines and shipping in forward areas, to form barriers at geographic choke points against the passage of enemy ships and submarines, and to operate in direct support of battle groups. Submarines might be used as well in various secondary missions such as minelaying in forward areas. The Navy believes that together all of these missions would require a force of more than 100 submarines in wartime. Until recently the Navy had a force level goal of 90 nuclear attack submarines. This has been increased recently to 100 submarines, but, pointing to the Soviet force of about 110 nuclear and 180 diesel attack submarines, the Navy regards even a 100-ship force goal as set more by budgetary than operational considerations. <sup>13/</sup>

### Amphibious Forces

Amphibious forces--that is, those forces capable of the forcible landing of troops from the sea--are regarded by the Navy as a key element of its power-projection capability. Given the current emphasis on the Rapid Deployment Force (RDF) and associated force projection capabilities in the national strategy, amphibious force capabilities assume particular importance.

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<sup>12/</sup> Attack submarines (designated SS--conventionally powered, or SSN--nuclear powered) are general purpose warships with a primary mission of defeating enemy submarines and surface warships. Ballistic missile submarines (SSBNs) are strategic force ships with a primary mission of launching nuclear ballistic missiles.

<sup>13/</sup> Vice Admiral J. G. Williams, USN, Deputy Chief of Naval Operations (Submarine Warfare), stated that he believes a force of 131 nuclear-powered attack submarines would be more appropriate to the real military need. In Hearings on Military Posture and H.R. 2970, Part 3, p. 216.

The amphibious force contains several types of ships, all specifically designed to support the landing of troops onto a hostile shore. The Navy's current capability, considering both troop and equipment lift requirements, can lift about one notional Marine Amphibious Force (MAF). <sup>14/</sup>

Current peacetime deployment requirements call for maintaining three Marine Amphibious Units (MAUs) continuously deployed, one in the Mediterranean and two in the Western Pacific, with a fourth intermittently deployed in the Caribbean or North Atlantic. With current amphibious ship force levels, however, only the Atlantic fleet can meet its requirement and both the Atlantic and Pacific fleets experience higher than desirable deployment ratios (ratio of time deployed to time in home port).

The Administration believes that the current amphibious lift capability should be substantially expanded to a level that would simultaneously support a MAB in addition to the current MAF. This would require a 50 percent increase in troop capacity over that required for a MAF alone and even larger increases in capacity for vehicles and cargo (see Table 3). Lift capacity would be increased both by adding to the number of ships in the amphibious force and by replacing retiring amphibious ships with new ships of larger capacity. Such an expansion would permit a simultaneous landing in force in two different areas or, of course, a landing with a substantially larger force in a single area.

#### Replenishment Ships

Navy planning currently considers a force of 69 replenishment ships to be the minimum needed to support a 15-carrier Navy. Table 4 shows the types of replenishment ships planned.

In underway replenishment, it is important to minimize the time a warship must spend alongside the replenishment ship. In the Navy's underway replenishment concept, warships in the battle

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<sup>14/</sup> Three acronyms--MAF, MAB, and MAU--are commonly used to denote variously sized aggregates of amphibious troops and their equipment. A Marine Amphibious Force (MAF) consists of about 32,500 troops, a Marine Amphibious Brigade (MAB) has about 15,500 troops, and a Marine Amphibious Unit (MAU) has about 1,600 troops.

TABLE 3. AMPHIBIOUS LIFT REQUIREMENTS

Lift Requirement	Personnel	Vehicles (Sq. Ft. X 1,000)	Cargo (Cu. Ft. X 1,000)	Helicopters
MAF (Current)	35,880	778	2,045	512
MAB (Proposed Addition)	17,826	495	1,771	167
Total Requirement	53,706	1,273	3,816	679
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Percent of one MAF Lift	150	164	187	133

SOURCE: Department of the Navy.

TABLE 4. REPLENISHMENT SHIPS: OBJECTIVES AND CURRENT FORCE

Ship Type	Objective	Current Force
Multiproduct Station Ships (AOE/AOR)	15	11
Oilers (AO/TAO)	29	19
Ammunition Ships (AE/TAE)	16	13
Refrigeration/Stores Ships (AFS/TAF)	<u>9</u>	<u>10</u>
Total	69	53

group would be resupplied by multiproduct "station ships," which would provide fuel, ammunition, and stores in a "one-stop" replenishment. <sup>15/</sup> The station ships would be resupplied by "shuttle ships"--oilers (AOs), ammunition ships (AEs), and stores ships (AFSs)--in the underway replenishment group. The shuttle ships, in turn, would be resupplied at advance bases with materials brought in by merchant ships.

Thus the Navy seeks to establish a logistics chain culminating in a rapid transfer of fuel, stores, and munitions to operating warships at sea. Since replenishment ships are absolutely essential for sustained operation at sea, loss of any link in the chain can result in loss of the logistics flow and, therefore, loss of the battle group's ability to sustain operations at sea. Any decision to expand the size of the battle fleet, therefore, requires a commensurate expansion of the mobile logistics support force.

### Mine Warfare Forces

Although mine warfare is among the least glamorous of naval activities, it is also one of the most potent threats in the entire arsenal of naval weapons. Not only can mines destroy enemy merchant and naval ships at low cost to the nation deploying them, but the very threat of mines can paralyze large numbers of enemy ships. Mines used by an inferior naval power can greatly inhibit the use of the seas by a dominant naval power, and the dominant power can use mines to solidify its control efficiently over ocean areas against potential challengers. Mine warfare, therefore, deserves careful consideration in developing naval plans and programs.

The Soviet Union is not unaware of the effectiveness of mines and is known to have the world's largest stockpile of mine warfare weapons. The U.S. mine warfare fleet has dwindled from about 100 ships in the mid-1960s to the present level of 25 ships, almost all of which are over 25 years old, and all but three of which are assigned to the Naval Reserve. The Navy plans to improve capabil-

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<sup>15/</sup> Station ships are designated as AOEs and AORs. AOEs are larger (53,000 tons vs. 37,000 tons) and faster (29 knots vs. 21 knots) than AORs.

ities in this long-neglected area by building at least 31 new mine countermeasure ships, designated MCM and MSH. The lead MCM was authorized in fiscal year 1982.

#### Summary of Navy Force Goals

The Navy believes that the fleet described above and outlined in Table 5 is the minimum force necessary to protect U.S. interests at sea, given currently foreseen conditions. It features 15 deployable aircraft carriers, with their associated air wings and battle group escorts, forming the primary offensive strike forces. These 15 battle groups, together with the four surface action groups (SAGs), 100 nuclear attack submarines, and

TABLE 5. NAVAL FORCE OBJECTIVES

Ship Type	Number of Ships	
	Objective	Current Force
Aircraft Carriers	15	12
Battleships	4	0
Battle Group Escorts	137	112
Frigates	101	81
Attack Submarines	100	91
Small Combatants	--	5
Total, Combatants	357	301
Amphibious Ships	75 (1.5 MAF)	65 (1.0 MAF)
Mine Warfare Ships	31	25
Replenishment Ships	69	53
Material Support Ships	27	26
Fleet Support Ships	33	30
Total, Other Types	235	199
Strategic Force (SSBNs)	Unstated	35
Total Ships	600+	535

1.5 MAF amphibious force, would provide both a larger Navy, better able to sustain the extensive deployment commitments now taxing the current forces, and a Navy with enhanced combat capabilities, better able to conduct wartime tasks.

The previous Administration had many of the same basic goals for the Navy, that is: improving fleet readiness, air defense capabilities, and antisubmarine warfare capabilities; maintaining forces for worldwide presence and crisis management; strengthening offensive striking power; and upgrading mine warfare posture. Force level goals were more modest, however: 12 deployable aircraft carriers, 90 nuclear attack submarines, amphibious lift for one MAF, and lower force goals in most other categories. The types of ships proposed by the current Administration are essentially the same as those of the previous Administration; the major difference is the size of the fleet.

#### THE FUTURE NAVY--WHAT IS NEEDED?

Current Navy strategy places primary emphasis on the carrier battle group as the basis of naval power. In the event of a full-scale war between the United States and the Soviet Union, battle groups would be the primary offensive striking arm for conducting a frontal assault against Soviet naval forces and bases. This mission, however, is by no means the only one that the Navy might be called upon to execute in the future. Depending upon the circumstances, the United States might find it advisable (because of the nature of the crisis, the disposition of Soviet forces, agreements made with allied nations, and so forth) to pursue some strategy other than a frontal assault on Soviet home bases. The Navy might face a distributed threat by Soviet and/or other naval forces that would require a different mix of ships, including a sufficient number of surface combatants to protect U.S. interests over a relatively long period in distant waters. Indeed, recent events in the Middle East have been of this nature, straining the Navy's resources with demands for additional continuous deployments.

In addition, some have questioned whether an approaching carrier battle group, with its enormous concentration of power, might induce the Soviet Union to use nuclear weapons against it. Certainly the temptation would be great, given the difficulty of defeating a battle group with conventional weapons. In addition, use of nuclear weapons at sea would involve minimal collateral damage; it would, therefore, be a clear-cut tactical use exclusively against military forces.

Even if one takes the most pessimistic view of the prospects for using carrier battle groups to attack Soviet bases, the need for aircraft carriers and their associated escort and support forces does not necessarily collapse, although the strategy for their employment might change. If the Navy was prevented from making a frontal assault on enemy naval forces in their basing areas because of concern about nuclear escalation--or for any other reason--then the strategy of winning through quick destruction of the enemy's naval forces and supporting base structure might have to be revised. In such a situation, a more gradual attrition of enemy forces and a wider distribution of naval forces might be necessary. In this kind of war, or in a war focused in some area of the Third World, a massive, coordinated attack such as the Soviet Union could organize near its home waters might not materialize, but the U.S. Navy could be faced with the task of opposing Soviet naval forces worldwide. In such circumstances, having ships with sufficient capability to withstand the maximum Soviet home-water threat might be less important than having enough ships to oppose a distributed threat in distant waters. 16/

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16/ For a discussion of alternatives for naval mission priorities, see Congressional Budget Office, Shaping the General Purpose Navy of the Eighties: Issues for Fiscal Years 1981-1985 (January 1980), Chapter II.



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### CHAPTER III. BUILDING THE FUTURE NAVY--ALTERNATIVE APPROACHES

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The Navy has described in fairly precise terms the kind of fleet it believes is needed, but, even within the context of that goal, there can be many different programs, depending upon how quickly and in what sequence the required ships are built. Future shipbuilding programs, however, may be constrained by budgetary limits. This has, in fact, been the prevailing reality in the past. Out-year shipbuilding plans have almost always been scaled down to fit within budgetary limitations.

If the fleet recommended by the Navy is accepted as the goal, it is clearly desirable to get the required ships at sea as soon as possible. Building up the fleet rapidly would be expensive, however. Budgetary and industrial limitations might necessitate a slower expansion. If even an extended buildup proved infeasible because of cost, then the force objectives might have to be modified. This could be done by reducing the number of ships in the shipbuilding program or by modifying the mix of ships contained within that program.

If the Navy determined to increase the fleet size but fell considerably short of its goal because of the high cost of the ships procured, this could affect significantly the strategy options available in a future conflict. An offensive strategy might still be possible with a smaller fleet of highly capable ships, if the force was properly massed, skillfully used, and not destroyed by nuclear counterattacks. If, however, the nature of the conflict called for extended operations in distant areas against a distributed threat, then a numerically smaller fleet might be hard pressed to prevail.

The Congress should consider carefully the longer-term budgetary implications of the Navy's shipbuilding program and assess whether the Navy's strategy--and the shipbuilding program derived from that strategy--is the best basis on which to proceed with naval modernization. In order to begin such an assessment, there must be some estimate of the longer-term budgetary costs of the Navy's program and of some possible alternative programs. That is the objective of this chapter. Later, in Chapter V, the implications for the total Navy budget, including manpower and support costs as well as procurement, will be examined.

This chapter presents four options illustrating the budgetary and force structure effects of using different approaches to future shipbuilding programs. The options are designed to illuminate major program and budgetary implications of representative future naval shipbuilding alternatives. None of the options were designed to match the specific details of the Administration's current five-year program. The Administration program is discussed in Chapter VI.

#### OVERVIEW OF OPTIONS FOR NAVAL SHIPBUILDING PROGRAMS

Of the four options examined, two--Options I and II--would achieve the number and types of ships recommended by the Navy, with Option I reaching the goal more quickly than Option II. Option III would limit costs by procuring fewer ships of the kinds contained in current Navy plans. It would result in a substantially smaller fleet than Options I and II. Option III illustrates what would probably happen if the United States embarked upon the Navy's plan, but the funding in future years fell short of the amount needed to complete the program. Option IV introduces some ship types not contained in current Navy plans. It would reach the Navy's numerical force level goals, but do so at a substantially lower cost than Options I or II. Option IV illustrates the kind of program that might be pursued if it was decided to emphasize a distributed-force, open-ocean capability as opposed to a concentrated carrier battle group offensive strategy.

Option I would achieve the Navy's force goals for types and numbers of ships and have these ships at sea by 1992. This time frame generally agrees with the goal stated by the Secretary of the Navy and is probably about the shortest industrially feasible time for accomplishing that goal. (For ships to be commissioned by 1992, CBO assumed that they would have to be authorized no later than 1988.)

Option I would require an annual budget for Shipbuilding and Conversion, Navy (SCN) averaging \$24.8 billion through 1988. <sup>1/</sup> That is a very high level--about 2 1/2 times the

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<sup>1/</sup> Funds for building Navy ships are appropriated in the budget category "Shipbuilding and Conversion, Navy" (SCN). The amount of this appropriation intended for new construction

shipbuilding budget in fiscal year 1982 (in fiscal year 1983 dollars).

Option II also would reach the Navy's force goals, but extend the period of time for building the required ships. In this option, rather than having the ships in the fleet in ten years, CBO assumed that the required ships would be authorized over a ten-year period ending in 1992. This means that all the ships would not enter the fleet until about 1996. Option II would require construction of more ships than Option I to compensate for the additional ships retired by the Navy during the longer duration of this option. Funding for Option II would average \$21.3 billion (in fiscal year 1983 dollars) annually through 1992, providing only slight budgetary relief from the high levels of Option I.

Since Options I and II both would result in shipbuilding and conversion budgets considerably higher than previous authorizations, Option III is presented to illustrate the force levels that might be achieved by 1996 if annual budgets were limited to levels about 25 percent above the level authorized in 1982 in fiscal year 1983 dollars. In Option III, it is assumed that the mix of ship types procured would be similar to those in current Navy plans, but the force levels would be lower, generally comparable to those planned during the Carter Administration.

Option IV would reach the higher force level goals advocated by the Navy but with a somewhat different mix of ships among the combatant types than in Options I and II. The annual cost of about \$15.1 billion, though higher than Option III, would be considerably lower than Options I and II.

Figure 1 shows the budget trends for shipbuilding and conversion, for each of the four options.

#### OPTION I: RAPID BUILDUP TO NAVY FORCE OBJECTIVES

Option I illustrates the program and budgetary implications of building naval forces conforming in numbers and types of ships to the goals presented to the Congress by the Navy in testimony

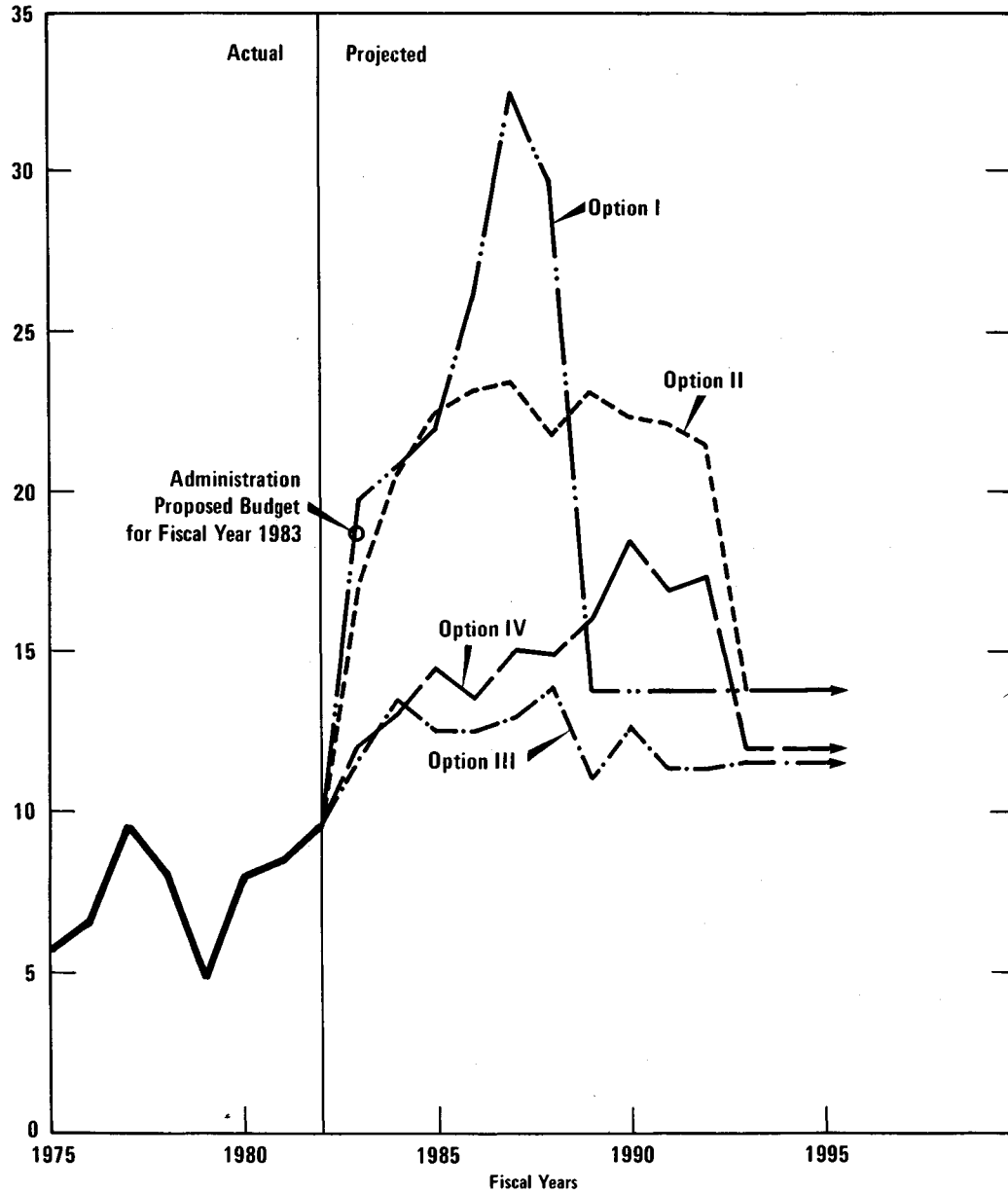
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varies from year to year but has averaged about 80 percent over the past 10 years. The other 20 percent is spent on other items, including ship conversions.

Figure 1.

# Shipbuilding and Conversion, Navy Budget Levels Since 1975 and Projected to 1995 Under Four Shipbuilding Program Options

Billions of Budget Year 1983 Dollars



during the spring of 1981. <sup>2/</sup> It would achieve these force goals with nearly all of the required ships in the fleet within ten years. This period is about the shortest time in which the required ships could be built and is in general agreement with the Secretary of the Navy's often stated goal of achieving a 600-ship Navy by the end of this decade. Indeed, Option I results in over 600 ships at sea by 1989. A force with the specific types of ships that conform to current Navy force structure goals is not achieved, however, until 1992.

In developing the force structure projections for Option I and for all subsequent options, CBO assumed that the ships currently in the fleet would be retained for at least a service life of 30 years. A service life of 50 years is assumed for aircraft carriers and 40 years for certain classes of auxiliary ships that are now frequently retained beyond 30 years. CBO assumed that ships would be delivered to the Navy four years after authorization, except for aircraft carriers which require eight years to build; Trident submarines, six years; nuclear-powered cruisers, five years; and nuclear-powered attack submarines, five years. Given these assumptions, new ships would have to be authorized no later than 1988 to be in the fleet by 1992.

Using these assumptions and the Navy's force objectives as shown in Table 5 in Chapter II, CBO developed a shipbuilding program through 1988 that would achieve the required force structure by about 1992. Details of this building program and a year-by-year breakdown of the resulting force structure are contained in Appendix A. The results are summarized in Tables 6 and 7.

This option would require authorization of a total of 176 ships over a period of six years at a total cost of \$119 billion. Major items include three aircraft carriers at \$3.5 billion each, six Trident submarines at \$1.4 billion each, nine SSN-688-class submarines at \$700 million per ship, and 61 cruisers and destroyers for a total surface combatant cost of about \$64 billion. This amount, however, is only for construction of new ships (and reactivation of the four battleships). The Navy shipbuilding budget contains other items, such as conversions, outfitting,

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<sup>2/</sup> See Hearings on Military Posture and H.R. 2970, Part 3, pp. 441-75.

TABLE 6. OPTION I: RAPID BUILDUP TO NAVY FORCE OBJECTIVES--SHIPS  
IN FLEET BY 1992 AND AUTHORIZED BY 1988 (Dollar amounts  
in fiscal year 1983 dollars)

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Current Force (End of 1981)	535
Retirements Through 1992	152
Now Building or Authorized	98
New Authority Through 1988	<u>176</u>
Fleet Total, 1992	657

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Six-Year Program: 176 ships costing \$119 billion

Average Annual Program: 29.3 ships costing \$19.8 billion

Average Annual SCN a/ Requirement: \$24.8 billion

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a/ SCN = Shipbuilding and Conversion, Navy. It is assumed that new construction accounts for 80 percent of the total SCN appropriation.

TABLE 7. OPTION I: RAPID BUILDUP TO NAVY FORCE OBJECTIVES--  
ILLUSTRATIVE SHIPBUILDING PROGRAM

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Ship Type	Number of Ships	Percent of Total Cost
Trident Submarines	6	7
Aircraft Carriers	3	9
Surface Combatants	64	55
Attack Submarines	9	5
Amphibious Ships	17	8
Mine Warfare Ships	30	2
Replenishment Ships	29	9
Material Support Ships	13	5
Fleet Support Ships	5	less than 1
Total	<u>176</u>	

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post delivery costs, cost growth, and unforeseen escalation. These items have averaged about 20 percent of the budget over the past 10 years. 3/ Assuming a 20 percent allowance for these other items, the resulting average annual cost would be \$24.8 billion, considerably higher than any previous peacetime shipbuilding budget. The fiscal year 1982 shipbuilding authorization was \$8.8 billion, or about \$9.6 billion in fiscal year 1983 dollars. The Administration's 1983 request is for \$18.6 billion for shipbuilding.

A summary breakdown of the six-year shipbuilding program is displayed in Table 7. It contains three new carriers necessary to build to 15 battle groups and other ships required to reach Navy force level goals. Clearly the dominant budget item is surface combatants, which claim over half of the total new construction budget. This is because of the large number of battle group surface combatants needed to replace those now approaching retirement and to build up to the higher force level goals, and the high cost of the current AEGIS and AEGIS-derivative ships proposed to replace them. 4/

This option is the most desirable in terms of the Navy's currently stated objectives. It would attain the Navy's force goals and do so in a shorter period of time--by 1992--than any of the other options. It would produce a fleet structured to support the Navy's current offensive strategy (discussed in Chapter III), including 15 deployable aircraft carriers and their associated highly capable escort ships.

The cost of Option I would be very high, however. It would require a drastic and immediate increase in the shipbuilding budget. These high budgetary costs might be relieved somewhat by extending the time taken to achieve the Navy's force goals. This alternative is investigated in Option II.

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3/ Funds for constructing Navy ships are contained in the Shipbuilding and Conversion, Navy appropriation. See footnote 1 of this chapter.

4/ AEGIS is the name of a large shipboard anti-air warfare system about to be deployed by the Navy. It has been in development since the late 1960s and will enter service for the first time on U.S.S. Ticonderoga (CG-47), scheduled for commissioning in 1983.

## OPTION II: MODERATELY PACED BUILDUP TO NAVY FORCE OBJECTIVES

Option II would attain the same Navy force goals as Option I, but extend the time to accomplish them. In Option II, CBO assumed that new ship authorizations required to achieve the force goals would be spread over a ten-year period ending in 1992, with ship deliveries substantially completed by 1996.

Since this option would extend over a longer period during which more older ships would be retired, more new ships would have to be authorized than in Option I. Using the same retirement criteria and building time assumptions as in Option I, an illustrative shipbuilding program was developed for this option. Details of the shipbuilding program and the year-by-year breakdown of the resulting force structure are contained in Appendix B. The results are summarized in Tables 8 and 9.

A total of 230 ships would have to be authorized over a period of ten years in this option at a total cost of \$170 billion. This would require an average annual expenditure for new construction of \$17.0 billion, somewhat less than in Option I, but spread over ten years rather than six. Moreover, the annual budget requirements would still be substantially higher than previous norms. Assuming again an allowance of 20 percent of the total SCN budget for items other than new construction, the total budget requirement would average about \$21.3 billion per year over the ten-year period.

In the summary breakdown given in Table 9, surface combatants still dominate in terms of their share of costs. As in Option I, this occurs because of the large number of ships required and the high cost of the AEGIS/AEGIS-derivative ships now being procured or developed. Surface combatants procured under this option include 20 CG-47-class cruisers at \$1.14 billion per ship, 42 DDGX destroyers at \$800 million per ship, and 16 nuclear cruisers (CGN) at \$1.75 billion per ship.

Option II would reach the same force goals as Option I, that is, a force consistent with the Navy's offensive strategy and with the Navy's currently stated requirements. These goals are achieved, however, four years later than in Option I. The average annual budget requirement for Option II would be reduced by about 16 percent from Option I, but would remain high--still over twice



TABLE 8. OPTION II: MODERATELY PACED BUILDUP TO NAVY FORCE OBJECTIVES--SHIPS IN FLEET BY 1996 AND AUTHORIZED BY 1992 (Dollar amounts in fiscal year 1983 dollars)

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Current Force (End of 1981)	535
Retirements Through 1996	240
Now Building or Authorized	98
New Authority Through 1992	<u>230</u>
Fleet Total, 1996	623

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Ten-Year Program: 230 ships costing \$170 billion

Average Annual Program: 23 ships costing \$17.0 billion

Average Annual SCN a/ Requirement: \$21.3 billion

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a/ Shipbuilding and Conversion, Navy. It is assumed that new construction accounts for 80 percent of the SCN appropriation.

TABLE 9. OPTION II: MODERATELY PACED BUILDUP TO NAVY FORCE OBJECTIVES--ILLUSTRATIVE SHIPBUILDING PROGRAM

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Ship Type	Number of Ships	Percent Total Cost
Trident Submarines	10	8
Aircraft Carriers	5	10
Surface Combatants	87	53
Attack Submarines	16	7
Amphibious Ships	26	9
Mine Warfare Ships	30	2
Replenishment Ships	38	8
Material Support Ships	13	3
Fleet Support Ships	<u>5</u>	less than 1
Total	230	

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the amount appropriated in fiscal year 1982. 5/ Alternatives with more modest budget requirements might, therefore, be of interest. One approach to lower budget costs--reducing the number of ships procured--is discussed in Option III.

#### OPTION III: BUDGET CONSTRAINED PROGRAM

Option III illustrates the force levels that would probably be achieved if the Navy procured the same types of ships as currently planned, but with a shipbuilding budget constrained to modest growth. In Option III, CBO assumed that the shipbuilding budget was constrained to a level averaging about \$9.7 billion per year for new construction--which would correspond to an overall \$12.1 billion SCN budget (in fiscal year 1983 dollars), again assuming new construction accounts for 80 percent of the SCN budget.

Under the assumptions discussed above, nearly all of the increased force level goals would have to be abandoned. The ships that could be procured within these limits would be sufficient only to replace ships being retired and maintain current force levels. Details of the illustrative shipbuilding program for this option and the resulting year-by-year force structure breakdown are contained in Appendix C. The results are summarized in Tables 10 and 11.

A Navy constrained to modestly increased budget levels and currently programmed ship types would closely resemble that planned by the Carter Administration: 12 deployable aircraft carrier battle groups, 90 nuclear attack submarines, amphibious lift for 1 Marine Amphibious Force (MAF), and current levels for most other ship types. The budget assumed for this option is not overly austere; indeed, it is higher than any SCN budget in the

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5/ The careful reader will observe that if Options I and II are considered over the same time period, fiscal years 1983 through 1996, the average budget requirement would be about the same. Both options would result in the same force structure but Option I would reach it in 1992 rather than 1996. Unless force goals were revised, subsequent construction would be only that required to maintain the status quo. Thus, in 1996 force levels under Options I and II would be identical, but Option I had funding accelerated in the early years.